

REMARKS

Claims 1, 2, 5, 6, 11, 12, 14, 15, 17, 19-23, 25, and 26 are all of the claims presently pending in the application. Applicants have not amended the claims by the present response.

Claims 1, 2, 5, 6, 11, 14, 15, 17, 19, 22, 23, 25, and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kamata, et al. (U.S Publication No. 2002/0142192; hereinafter “Kamata”) in view of Grider, et al. (U.S. Patent No. 6,093,659; hereinafter “Grider”). Claim 12 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kamata in view of Grider and Ning, et al. (U.S. Publication No. 2002/0098676; hereinafter “Ning”). Claims 20 and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kamata in view of Grider and Chen, et al. (U.S. Patent No. 6,165,803; hereinafter “Chen”).

Applicants respectfully traverse these rejections in the following discussion.

I. THE CLAIMED INVENTION

The claimed invention of exemplary claim 1 is directed to a method of patterning a magnetic thin film. The method includes transforming a portion of the magnetic thin film to be non-magnetic and electrically insulating using a chemical transformation. The chemical transformation uses a reactive plasma including a combination of a fluorine-based gas and a bromide-containing gas. The portion of the magnetic thin film includes NiFe and the transforming includes transforming the NiFe to a fluorine-containing film, and wherein the fluorine-containing film is electrically insulating. (See Application at page 7, lines 11-23).

II. THE PRIOR ART REFERENCES

A. The Alleged Combination of Kamata and Grider

The Examiner alleges that one of ordinary skill in the art would have combined Kamata with Grider to teach the claimed invention of claims 1, 2, 5, 6, 11, 14, 15, 17, 19, 22, 23, 25, and 26. Applicants submit, however, that the Examiner has failed to establish a *prima facie* case of obviousness and that one of ordinary skill in the art would not have combined Grider with Kamata.

The Examiner concedes that Kamata does not teach or suggest, “*said chemical transformation comprises using a reactive plasma comprising a combination of a fluorine-based gas and a bromide-containing gas*”, as recited in exemplary claim 1 (see Office Action dated February 9, 2009 at page 3).

The Examiner, however, alleges that Grider makes up the deficiencies of Kamata. Specifically, the Examiner alleges, “Grider teaches halogen species including fluorine-containing gases and bromide-containing gases are routinely usable together in a same chemical reaction.” (See Office Action dated February 9, 2009 at page 3).

In attempting to combine the teachings of Grider in the method of Kamata, the Examiner alleges,

“it would have been obvious to one having ordinary skill in the art at the time of invention was made (sic) to transform the portion of the magnetic thin film of Kamata to be non-magnetic and electrically insulating film (sic) utilizing halogen-containing gas comprising fluorine-based film and bromide-containing gas as taught by Grider since the species of halogen-containing gas are well known in the art to be utilized together for the same intended purpose.” (See Office Action dated February 9, 2009 at page 3).

Applicants submit, however, that the Examiner has failed to establish a *prima facie* case of obviousness.

In general, Applicants respectfully submit that the rejection of record fails to satisfy *KSR*'s requirement that “[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”

Applicants respectfully submit that the rejection of record provides no more than “mere conclusory statements.” Essentially, the method of evaluation in this rejection consists of nothing more than merely:

- Identifying a missing element;
- Describing a feature purportedly inherent in this missing element; and
- Summarily alleging that obviousness results because this inherent feature of this missing element would thereby be provided, in the abstract, by incorporating the missing element.

Applicants submit that this circular reasoning identified above is exactly the type of conclusory statements that the *KSR* holding expressly prohibits and constitutes an improper reasoning mechanism.

Applicants further submit that the underlying fundamental logical flaw in this evaluation approach is that the feature purported to be inherent in this missing element is not realistically related back to the primary reference and that the Examiner's initial burden is not satisfied by simply pointing out features of the missing element, in the abstract, as done in the rejections of record.

Indeed, the rejections of record fail to follow any of the seven rationales now identified

in the beginning of MPEP §2143 and previously published by the USPTO in its October 10, 2007, Federal Register Notices, in the aftermath of *KSR*.

In rejecting the claims, the Examiner alleges that Grider makes up the deficiencies of Kamata because Grider allegedly discloses halogen species including fluorine-containing gases and bromide-containing gases used together. The Examiner attempts to rely on claim 17 of Grider to support this allegation.

Claim 17 of Grider recites, “The method of claim 9, wherein said introducing step introduces a halogen chemistry selected from the group consisting of NF₃, HCl, CF₄, CCl₄, HBr, Cl₂, or combinations thereof.”

Claim 17 of Grider general recites the phrase “or combinations thereof.” Thus, the Examiner interprets this phrase such that Grider teaches using any combination of the listed halogen chemistries.

Applicants submit, however, that it is insufficient for the Examiner to establish that a secondary reference teaches a feature that is missing from the primary reference. Indeed, the Examiner must establish why one of ordinary skill in the art would have combined the feature of the secondary reference with the teachings of the primary reference.

Grider, throughout its specification, teaches introducing a halogen species that may be introduced using anyone of NF₃, HCl, CF₄, CCl₄, HBr, or Cl₂. The specification does not discuss using a combination of halogen chemistries. Indeed, the only mention of a combination of halogen species is in claim 17 of Grider. Thus, Grider does not provide any reason for introducing a combination of halogen species nor does Grider disclose or suggest any advantage that is achieved by introducing a combination of halogen chemistries.

Furthermore, Grider does not use the halogen species for the same purpose as in

Kamata. Indeed, Kamata uses halogen species to transform a portion of a magnetic film to be non-magnetic. Grider, however, uses halogen species to retard oxidation in certain portions of a circuit so that a single oxidation step may be used to form gate oxides having different thicknesses (see Grider at column 1, line 61 through column 2, line 4).

Thus, Grider does not teach or suggest using halogen species or a combination of halogen species for transforming a portion of a magnetic film to be non-magnetic. Accordingly, one of ordinary skill in the art would not have modified Kamata in view of Grider.

Moreover, Applicants submit that Grider and Kamata are non-analogous art. First, Grider and Kamata have different U.S.P.T.O. classifications and fields of search, which is evidence of nonanalogy. Second, Grider and Kamata are different in both structure and function, which is further evidence of nonanalogy (see M.P.E.P. §2141.01(a)).

Grider is directed to a method of forming an integrated circuit having multiple gate oxide thicknesses. As explained above, the gate oxide thicknesses are achieved through doping portions of the circuit.

Kamata, however, is directed to a method of patterning a magnetic material, which includes forming a ferromagnetic layer and subsequently making the layer nonferromagnetic.

Accordingly, the methods, structures, and functions of Grider and Kamata are completely unrelated.

The standard for determining whether a secondary reference is analogous to the primary reference is whether the secondary reference “logically would have commended itself to an inventor's attention in considering his or her invention as a whole” (see M.P.E.P.

§2141.01(a)). Applicants submit that one of ordinary skill in the art, attempting to transform a ferromagnetic layer to a nonferromagnetic layer (Kamata), would not have considered a reference (Grider) directed to forming a gate oxide layer having multiple thicknesses. Indeed, Grider does not even mention ferromagnetic materials let alone provide any insight into transforming a ferromagnetic layer to a nonferromagnetic layer.

Therefore, Applicants submit that the Examiner has failed to establish a *prima facie* case of obviousness and that one of ordinary skill in the art would not have combined Grider with Kamata. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

B. The Ning Reference

The Examiner alleges that one of ordinary skill in the art would have combined Ning with Kamata and Grider to teach the claimed invention of claim 12. Applicants submit, however, that the Examiner has failed to establish a *prima facie* case of obviousness.

That is, claim 12 is allowable at least based on similar reasons to those set forth above, in section A, with respect to claims 1, 2, 5, 6, 11, 14, 15, 17, 19, 22, 23, 25, and 26.

Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

C. The Chen Reference

The Examiner alleges that one of ordinary skill in the art would have combined Chen with Kamata and Grider to teach the claimed invention of claims 20 and 21. Applicants submit, however, that the Examiner has failed to establish a *prima facie* case of obviousness.

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That is, claims 20 and 21 are allowable at least based on similar reasons to those set forth above, in section A, with respect to claims 1, 2, 5, 6, 11, 14, 15, 17, 19, 22, 23, 25, and 26.

Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

III. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicants submit that claims 1, 2, 5, 6, 11, 12, 14, 15, 17, 19-23, 25, and 26, all of the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. Applicants respectfully request the Examiner to pass the above application to issue at the earliest possible time.

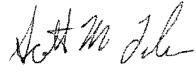
Should the Examiner find the application to be other than in condition for allowance, Applicants requests the Examiner to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

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The undersigned authorizes the Commissioner to charge any deficiency in fees or to credit any overpayment in fees to Assignee's Deposit Account No. 50-0510.

Respectfully Submitted,

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